

Response
Serial No. 10/049,615
Attorney Docket No. 011362

AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions of claims in the application.

Listing of Claims:

1. (Currently amended): A ferromagnetic p-type single-crystal ~~zinc manganese-doped~~ zinc oxide material having a ferro magnetic-transition critical temperature of 150 K or more, comprising a single-crystal of ~~zinc~~ zinc-manganese oxide that contains

[[1]] 5.2 to 99 mol% manganese, and

a p-type dopant selected from a group consisting of C, N, and oxides thereof,

wherein said p-type single-crystal ~~zinc~~ zinc-manganese oxide material having a hole concentration of $1 \times 10^{18} \text{ cm}^{-3}$ or more and a low resistance of $1 \Omega \cdot \text{cm}$ or less.

2. (Currently amended): A ferromagnetic p-type single-crystal ~~zinc manganese oxide~~ material having a ferro magnetic-transition critical temperature of 150 K or more, comprising a single-crystal of ~~zinc~~ zinc-manganese oxide that contains

[[1]] 5.2 to 99 mol% manganese,

a p-type dopant selected from a group consisting of C, N, and oxides thereof, and

an n-type dopant selected from a group consisting of B, Al, In, Ga, Zn, and oxides thereof,

wherein said p-type single-crystal ~~zinc~~ zinc-manganese oxide material having a hole concentration of $1 \times 10^{18} \text{ cm}^{-3}$ or more and a low resistance of $1 \Omega \cdot \text{cm}$ or less.

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3. (Currently amended): A method for manufacturing a ferromagnetic p-type single-crystal zinc zinc-manganese oxide material having a ferro magnetic-transition critical temperature of 150 °K or more, comprising steps of:

holding a semiconductor substrate within a temperature range of 300-800 °C in a vacuum atmosphere,and

supplying an atomic gas from a solid-state source of Zn or Zn oxide and an activated oxygen onto said semiconductor substrate to grow a single-crystal zinc-oxide zinc-manganese oxide thin film on the substrate while an atomic p-type dopant selected from a group consisting of C, N, and oxides thereof and an atomic Mn are supplied all together onto the substrate.

4. (Previously presented): A method as defined in claim 3, further comprising a step of doping an n-type dopant so as to provide a higher concentration of the p-type dopant than that of the n-type dopant.